TECH LUMEN
WHEN LIGHT MATTERS

LED GROW LIGHT

V-HORTI series

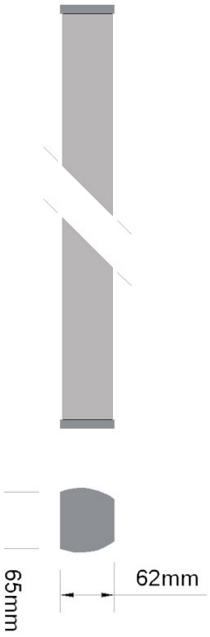
V-HORTI use Nichia's Hortisolis technology.

They produce light of a special spectrum that favours plant growth and increases production.

At the same time, the emitted light is white, does not tire the worker and makes it easier to distinguish the degree of plant development.

They have a high IP66 waterproof rating and excellent durability. They are made of anodized aluminium, so they are suitable for use in adverse environments.

Dimensions



Produced in Greece

Pros

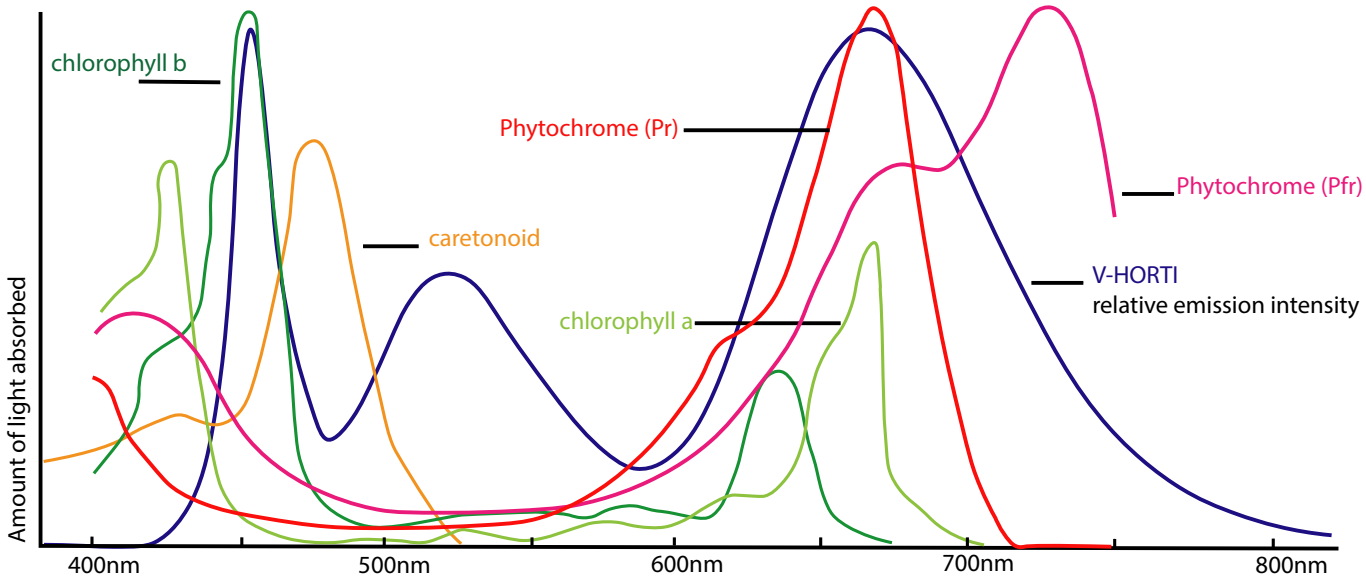
- Tested spectrum efficiency
- Low operating temperature due to excellent heat induction
- Produces minimal heat compared to other types of lighting
- Does not require maintenance
- Long life - up to 8 years warranty
- Easy installation
- High reliability
- Excellent performance with low energy consumption
- Instant start - instant shutdown
- Does not contain mercury
- Resistance to shocks and vibrations

Light is essential for photosynthesis, the primary energy conversion mechanism in plants. The process is driven primarily by red and blue light through chlorophyll in photosystems II and I. Three factors are important here:

- Light intensity - measured in the number of photons a plant can use
- Photoperiodization - which reflects the duration of the exposure.
- Light quality - corresponding to the wavelengths of light to which the plants are exposed.

Light affects plant processes in many ways. Each process can be attributed to a specific photoreceptor that reacts to a specific range of wavelengths:
Cryptochromatic photoreceptors perceive blue and UVA light and are responsible for phototropism and photomorphogenesis.
Other photoreceptors, phytochrome, are receptors of dark red radiation (far-red)

Phytochrome, unlike cryptochrome, has 2 forms that differ in the wavelength of light they absorb.
Pr (red photochromic) absorbs red at 660nm
Pfr (dark red phytochrome) absorbs dark red at 730nm.
However, interestingly, Pr and Pfr can interconvert their molecular structure depending on the ratio of red and dark red wavelengths.



Typical absorption spectra of basic plant pigments

Since blue light and red light are the primary wavelengths absorbed by plant chlorophyll, purple fluorescent lamps or a combination of blue and red LEDs have traditionally been used as the most energy-efficient lighting for plant growth. However, lighting with only two colours, blue and red, is tiring for workers and causes problems in the work environment, such as difficulty in determining the degree of growth of plants.

Recently, there has been a growing interest in lighting similar to natural sunlight to solve these problems.

However, white light, which is similar to natural sunlight, contains wavelengths that are not necessary for plant growth and are not optimally efficient relative to the energy cost of their operation.

Observation of cherry-tomatoes under blue and red LED light

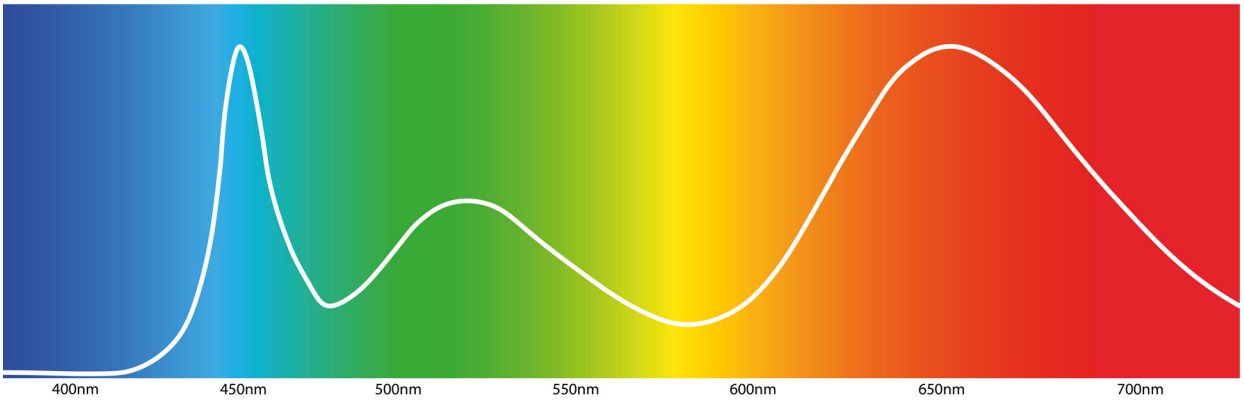
Difficult observation of the stage of development and maturation

Observation of cherry-tomatoes under V-HORTI lighting

easy observation of growth and ripening stage

V-HORTI LEDs are designed, i**n addition to the red and blue spectrum, to produce infrared red and green.**
The purpose of adding infrared light is to induce the shade avoidance response in plants. Plants monitor the ratio of red light to infrared light (R/FR). Infrared light is not absorbed by chlorophyll. Shaded parts of the plant recognize the higher FR to R ratio and respond by extending their stems to gain access to light. This behaviour is called the shade avoidance response.
This way, infrared light stimulates plant growth by inducing the shade avoidance response.

The purpose of adding green light is to create almost white light by combining it with blue and red, **to improve working conditions and facilitate the observation of the degree of growth of plants and fruits.**



V-HORTI spectrum

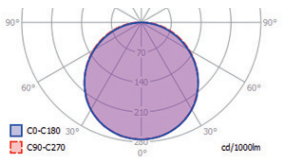
Model	V-HORTI
Photosynthetic Photon Flux (PPF)	53 - 252 μmol/S
Photon Flux (PF)	64 - 307 μmol/S
Photosynthetic Luminaire Efficacy	1,66 - 2,30 μmol/S /W
Luminaire Efficacy	2,03 - 2,80 μmol/S /W
Ambient Temperature	-30 °C - + 50 °C
Power Factor	0,95
CCT	5310K
L70B10	>70000h
IP Rating	IP66
IK Rating	IK09
Body	Anodized Alluminium
Dimensions	62mm x 65mm x (600 - 1450)mm
Weight	1.3 - 2.5 Kg
Warranty	5 years
Compliances:	CE
	EN 60598-1:2008 +A11:2009
	EN 60598-2-1
	EN 50581
	EN 61000-3-2:2006 + A1:2009 + A2:2009
	EN 61547:2009
	EN 55015:2006 + A1:2007 +A2:2009
	EN 61000-3-3:2008
	EN 62471:2008
	IEC 62778
	EN 62493:2010
	Directive (LVD) 2014/35/EU
	Directive (EMC) 2014/30/EU
	Directive (RoHS) 2011/65/EC
	Directive (REACH) 2006/1907/EC
	Directive (EuP) 2009/125/EC

V-HORTI Versions

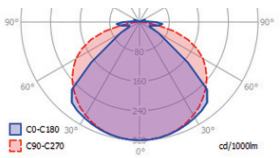
Lenght	Code	Watt	Ph/tic PPF (μmol/S)	Total PPF (μmol/S)	Photosynthetic Luminaire Efficacy μmol/S /W	Total Luminaire Efficacy μmol/S /W
60cm	V-HORTI-60-30	30	53	64	1,76	2,13
	V-HORTI-60-60	60	100	122	1,66	2,03
115cm	V-HORTI-115-26	26	60	73	2,3	2,8
	V-HORTI-115-60	60	105	128	1,75	2,13
	V-HORTI-115-120	120	201	245	1,68	2,04
145cm	V-HORTI-145-75	75	132	160	1,75	2,13
	V-HORTI-145-148	148	252	307	1,68	2,04

Polar Intensity Diagram

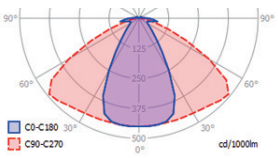
120°



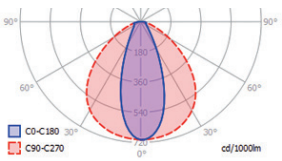
90°



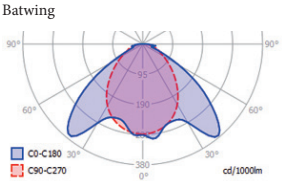
60°



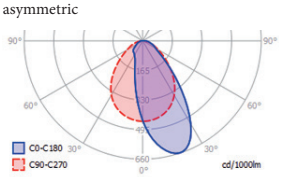
40°



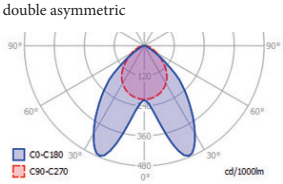
Batwing



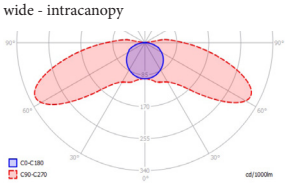
asymmetric



double asymmetric



wide - intracanopy



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